THE WHITE HOUSE

Washington, D. C.

IMMEDIATE RELEASE August 6, 1945

STATEMENT BY THE PRESIDENT OF THE UNITED STATES

Sixteen hours ago an American airplane dropped one bomb on Hiroshima, an important Japanese Army base. That bomb had more power than 20,000 tons of T.N.T. It had more than two thousand times the blast power of the British "Grand Slam" which is the largest bomb ever yet used in the history of warfare.

The Japanese began the war from the air at Pearl Harbor. They have been repaid many fold. And the end is not yet. With this bomb we have now added a new and revolutionary increase in destruction to supplement the growing power of our armed forces. In their present form these bombs are now in production and even more powerful forms are in development.

It is an atomic bomb. It is a harnessing of the basic power of the universe. The force from which the sun draws it power has been loosed against those who brought war to the Far East.

Before 1939, it was the accepted belief of scientists that it was theoretically possible to release atomic energy. But no one knew any practical method of doing it. By 1942, however, we knew that the Germans were working feverishly to find a way to add atomic energy to the other engines of war with which they hoped to enslave the world. But they failed. We may be grateful to Providence that the Germans got the V-1's and the V-2's late and in limited quantities and even more grateful that they did not get the atomic bomb at all.

The battle of the laboratories held fateful risks for us as well as the battles of the air, land and sea, and we have now won the battle of the laboratories as we have won the other battles.

Beginning in 1940, before Pearl Harbor, scientific knowledge useful in war was pooled between the United States and Great Britain, and many priceless helps to our victories have come from that arrangement. Under that general policy the research on the atomic bomb was begun. With American and British scientists working together we entered the race of discovery

against the Germans.

The United States had available the large number of scientists of distinction in the many needed areas of knowledge. It had the tremendous industrial and financial resources necessary for the project and they could be devoted to it without undue impairment of other vital war work. In the United States the laboratory work and the production plants, on which a substantial start had already been made, would be out of reach of enemy bombing, while at that time Britain was exposed to constant air attack and was still threatened with the possibility of invasion. For these reasons Prime Minister Churchill and President Roosevelt agreed that it was wise to carry on the project here. We now have two great plants and many lesser works devoted to the production of atomic power. Employment during peak construction numbered 125,000 and over 65,000 individuals are even now engaged in operating the plants. Many have worked there for two and a half years. Few know what they have been producing. They see great quantities of material going in and they see nothing coming out of these plants, for the physical size of the explosive charge is exceedingly small. We have spent two billion dollars on the greatest scientific gamble in history -- and won.

But the greatest marvel is not the size of the enterprise, its secrecy, nor its cost, but the achievement of scientific brains in putting together infinitely complex pieces of knowledge held by many men in different fields of science into a workable plan. And hardly less marvelous has been the capacity of industry to design, and of labor to operate, the machines and methods to do things never done before so that the brain child of many minds came forth in physical shape and performed as it was supposed to do. Both science and industry worked under the direction of the United States Army, which achieved a unique success in managing so diverse a problem in the advancement of knowledge in an amazingly short time. It is doubtful if such another combination could be got together in the world. What has been done is the greatest achievement of organized science in history. It was done under high pressure and without failure.

We are now prepared to obliterate more rapidly and completely every productive enterprise the Japanese have above ground in any city. We shall destroy their docks, their factories, and their communications. Let there be no mistake; we shall completely destroy Japan's power to make war.

It was to spare the Japanese people from utter destruction that the ultimatum of July 26 was issued at Potsdam. Their leaders promptly rejected that ultimatum. If they do not now accept our terms they may expect a rain of ruin from the air, the like of which has never been seen on this earth. Behind this air attack will follow sea and land forces in such numbers and power as they have not yet seen and with the fighting skill of which they are already well aware.

The Secretary of War, who has kept in personal touch with all phases of the project, will immediately make public a statement giving further details.

His statement will give facts concerning the sites at Oak Ridge near Knoxville, Tennessee, and at Richland near Pasco, Washington, and an installation near Santa Fe, New Mexico. Although the workers at the sites have been making materials to be used in producing the greatest destructive force in history they have not themselves been in danger beyond that of many other occupations, for the utmost care has been taken of their safety.

The fact that we can release atomic energy ushers in a new era in man's understanding of nature's forces. Atomic energy may in the future supplement the power that now comes from coal, oil, and falling water, but at present it cannot be produced on a basis to compete with them commercially. Before that comes there must be a long period of intensive research.

It has never been the habit of the scientists of this country or the policy of this Government to withhold from the world scientific knowledge. Normally, therefore, everything about the work with atomic energy would be made public.

But under present circumstances it is not intended to divulge the technical processes of production or all the military applications, pending

further examination of possible methods of protecting us and the rest of the world from the danger of sudden destruction.

I shall recommend that the Congress of the United States consider promptly the establishment of an appropriate commission to control the production and use of atomic power within the United States. I shall give further consideration and make further recommendations to the Congress as to how atomic power can become a powerful and forceful influence towards the maintenance of world peace.

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WAR DEPARTMENT

Washington, D. C.

IMMEDIATE RELEASE

August 6, 1945

STATEMENT OF THE SECRETARY OF WAR

The recent use of the atomic bomb over Japan, which was today made known by the President, is the culmination of years of herculean effort on the part of science and industry working in cooperation with the military authorities. This development which was carried forward by the many thousand participants with the utmost energy and the very highest sense of national duty, with the greatest secrecy and the most imperative of time schedules, probably represents the greatest achievement of the combined efforts of science, industry, labor, and the military in all history.

The military weapon which has been forged from the products of this vast undertaking has an explosive force such as to stagger imagination. Improvements will be forthcoming shortly which will increase by several fold the present effectiveness. But more important for the long-range implications of this new weapon, is the possibility that another scale of magnitude will be evolved after considerable research and development. The scientists are confident that over a period of many years atomic bombs may well be developed which will be very much more powerful than the atomic bombs now at hand. It is abundantly clear that the possession of this weapon by the United States even in its present form should prove a tremendous aid in the shortening of the war against Japan.

The requirements of security do not permit of any revelation at this time of the exact methods by which the bombs are produced or of the nature of their action. However, in accord with its policy of keeping the people of the nation as completely informed as is consistent with national security, the War Department wishes to make known at this time, at least in broad dimension, the story behind this tremendous weapon which has been developed so effectively to hasten the end of the war. Other statements will be released which will give further details concerning the scientific and production aspects of the project and will give proper recognition to the scientists, technicians, and the men of industry and labor who have made this weapon possible.

I.

The chain of scientific discoveries which has led to the atomic bomb began at the turn of the century when radio-activity was discovered. Until 1939 work in this field was world-wide, being carried on particularly in the United States, the United Kingdom, Germany, France, Italy and Denmark.

Before the lights went out over Europe and the advent of war imposed security restrictions, the fundamental scientific knowledge concerning atomic energy from which has been developed the atomic bomb now in use by the United States was widely known in many countries, both Allied and Axis. The war, however, ended the exchange of scientific information on this subject and, with the exception of the United Kingdom and Canada, the status of work in this field in other countries is not fully known, but we are convinced that Japan will not be in a position to use an atomic bomb in this war. While it is known that Germany was working feverishly in an attempt to develop such a weapon, her complete defeat and occupation has now removed that source of danger. Thus it was evident when the war began that the development of atomic energy for war purposes would occur in the near future and it was a question of which nations would control the discovery.

A large number of American scientists were pressing forward the boundaries of scientific knowledge in this fertile new field at the time when American science was mobilized for war. Work on atomic fission was also in progress in the United Kingdom when the war began in Europe. A close connection was maintained between the British investigations and the work here, with a pooling of information on this as on other matters of scientific research of importance for military purposes. It was later agreed between President Roosevelt and Prime Minister Churchill that the project would be most quickly and effectively brought to fruition if all effort were concentrated in the United States, thus ensuring intimate collaboration and also avoiding duplication. As a consequence of this decision, a number of British scientists who had been working on this problem were transferred here in late 1943, and they have from that time participated in the development of the project in the United States.

II.

Late in 1939 the possibility of using atomic energy for military purposes was brought to the attention of President Roosevelt. He appointed a committee to survey the problem. Research which had been conducted on a small scale with Navy funds was put on a full scale basis as a result of the recommendations of various scientific committees. At the end of 1941 the decision was made to go all-out on research work, and the project was put under the direction of a group of eminent American scientists in the Office of Scientific Research and Development, with all projects in operation being placed under contract with the OSRD. Dr. Vannevar Bush, Director of OSRD, reported directly to the President on major developments. Meanwhile, President Roosevelt appointed a General Policy Group, which consisted of former Vice President Henry A. Wallace, Secretary of War Henry L. Stimson, General George C. Marshall, Dr. James B. Conant, and Dr. Bush. In June 1942 this group recommended a great expansion of the work and the transfer of the major part of the program to the War Department. These recommendations were approved by President Roosevelt and put into effect. Major General Leslie R. Groves was appointed by the Secretary of War to take complete executive charge of the program and was made directly responsible to him and the Chief of Staff. In order to secure continuing consideration to the military aspects of the program, the President's General Policy Group appointed a Military Policy Committee consisting of Dr. Bush as Chairman with Dr. Conant as his alternate, Lt. General Wilhelm D. Styer, and Rear Admiral William R. Purnell. This Committee was charged with the responsibility of considering and planning military policy relating to the program including the development and manufacture of material, the production of atomic fission bombs, and their use as a weapon.

Although there were still numerous unsolved problems concerning the several theoretically possible methods of producing explosive material, nevertheless, in view of the tremendous pressure of time it was decided in December 1942 to proceed with the construction of large scale plants. Two of these are located at the Clinton Engineer Works in Tennessee and a third

is located at the Hanford Engineer Works in the State of Washington. The decision to embark on large scale production at such an early stage was, of course, a gamble, but as is so necessary in war a calculated risk was taken and the risk paid off.

The Clinton Engineer Works is located on a Government reservation of some 59,000 acres eighteen miles west of Knoxville, Tennessee. The large size and isolated location of this site was made necessary by the need for security and for safety against possible, but then unknown, hazards. A Government-owned and operated city, named Oak Ridge, was established within the reservation to accommodate the people working on the project. They live under normal conditions in modest houses, dormitories, hutments, and trailers, and have for their use all the religious, recreational, educational, medical, and other facilities of a modern small city, The total population of Oak Ridge is approximately 78,000 and consists of construction workers and plant operators and their immediate families; others live in immediately surrounding communities.

The Hanford Engineer Works is located on a Government reservation of 430,000 acres in an isolated area fifteen miles northwest of Pasco, Washington. Here is situated a Government-owned and operated town called Richland with a population of approximately 17,000 consisting of plant operators and their immediate families. As in the case of the site in Tennessee, consideration of security and safety necessitated placing this site in an isolated area. Living conditions in Richland are similar to those in Oak Ridge.

A special laboratory dealing with the many technical problems involved in putting the components together into an effective bomb is located in an isolated area in the vicinity of Santa Fe, New Mexico. This laboratory has been planned, organized, and directed by Dr. J. Robert Oppenheimer. The development of the bomb itself has been largely due to his genius and the inspiration and leadership he has given to his associates.

Certain other manufacturing plants much smaller in scale are located in the United States and in Canada for essential production of needed materials. Laboratories at the Universities of Columbia, Chicago, and California, Iowa State College, and at other schools as well as certain industrial laboratories have contributed materially in carrying on research and in developing special equipment, materials, and processes for the project. A laboratory has been established in Canada and a pilot plant for the manufacture of material is being built. This work is being carried on by the Canadian Government with assistance from, and appropriate liaison with, the United States and the United Kingdom.

While space does not permit of a complete listing of the industrial concerns which have contributed so signally to the success of the project, mention should be made of a few. The du Pont de Nemours Company designed and constructed the Hanford installations in Washington and operate them. A special subsidiary of the M. W. Kellogg Company of New York designed one of the plants at Clinton, which was constructed by the J. A. Jones Company and is operated by the Union Carbide and Carbon Company. The second plant at Clinton was designed and constructed by the Stone and Webster Engineering Corporation of Boston and is operated by the Tennessee Eastman Company. Equipment was supplied by almost all of the important firms in the United States, including Allis-Chalmers, Chrysler, General Electric, and Westinghouse. These are only a few of the literally thousands of firms, both large and small, which have contributed to the success of the program. It is hoped that one day it will be possible to reveal in greater detail the contributions made by industry to the successful development of this weapon.

Behind these concrete achievements lie the tremendous contributions of American science. No praise is too great for the unstinting efforts, brilliant achievements, and complete devotion to the national interest of the scientists of this country. Nowhere else in the world has science performed so successfully in time of war. All the men of science who have cooperated effectively with industry and the military authorities in bringing

the project to fruition merit the very highest expression of gratitude from the people of the nation.

In the War Department the main responsibility for the successful prosecution of the program rests with Major General Leslie R. Groves. His record of performance in securing the effective development of this weapon for our armed forces in so short a period of time has been truly outstanding and merits the very highest commendation.

III.

From the outset extraordinary secrecy and security measures have surrounded the project. This was personally ordered by President Roosevelt and his orders have been strictly complied with. The work has been completely compartmentalized so that while many thousands of people have been associated with the program in one way or another no one has been given more information concerning it than was absolutely necessary to his particular job. As a result only a few highly placed persons in Government and science know the entire story. It was inevitable, of course, that public curiosity would be aroused concerning so large a project and that citizens would make inquiries of Members of Congress. In such instances the Members of Congress have been most cooperative and have accepted in good faith the statement of the War Department that military security precluded any disclosure of detailed information.

In the appropriation of funds, the Congress has accepted the assurances of the Secretary of War and the Chief of Staff that the appropriations made were absolutely essential to national security. The War Department is confident that the Congress will agree that its faith was not a mistake. Because it has not been possible for Congress to keep a close check on the expenditure of the funds appropriated for the project which to June 30, 1945, amounted to $1,950,000,000, key scientific phases of the work have been reviewed from time to time by eminently qualified scientists and industrial leaders in order to be certain that the expenditures were warranted by the potentialities of the program.

The press and radio of the nation, as in so many other instances, have complied wholeheartedly with the requests of the Office of Censorship that publicity on any phase of this subject be suppressed.

IV.

In order to bring the project to fruition as quickly as possible, it was decided in August 1943 to establish a Combined Policy Committee with the following membership: Secretary of War Henry L. Stimson, Dr. Vannevar Bush, and Dr. James B. Conant, for the United States; Field Marshal Sir John Dill and Colonel J. J. Llewellin, for the United Kingdom;* and Mr. C. D. Howe, for Canada. The Committee is responsible for the broad direction of the project as between the countries. Interchange of information has been provided for within certain limits. In the field of scientific research and development full interchange is maintained between those working in the same sections of the field; in matters of design, construction and operation of large scale plants information is exchanged only when such exchange will hasten the completion of weapons for use in the present war. All these arrangements are subject to the approval of the Combined Policy Committee, The United States members have had as their scientific adviser Dr. Richard C. Tolman; the British members, Sir James Chadwick; and the Canadian member, Dean C. J. Mackenzie.

It was early recognized that in order to make certain that this tremendous weapon would not fall into the hands of the enemy prompt action should be taken to control patents in the field and to secure control over the ore which is indispensable to the process. Substantial patent control has been accomplished in the United States, the United Kingdom, and Canada.

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* Colonel Llewellin was replaced by Sir Ronald I. Campbell in December 1943 and the latter, in turn, by the Earl of Halifax. The late Field Marshal Sir John Dill was replaced by Field Marshal Sir Henry Maitland Wilson early in 1945.

In each country all personnel engaged in the work, both scientific and industrial, are required to assign their entire rights to any inventions in this field to their respective governments. Arrangements have been made for appropriate patent exchange in instances where inventions are made by nationals of one country working in the territory of another. Such patent rights, interests, and titles as are exchanged, however, are held in a fiduciary sense subject to settlement at a later date on mutually satisfactory terms. All patent actions taken are surrounded by all safeguards necessary for the security of the project. At the present stage of development of the science of atomic fission, uranium is the ore essential to the production of the weapon. Steps have been taken, and continue to be taken, to assure us of adequate supplies of this mineral.

V.

Atomic fission holds great promise for sweeping developments by which our civilization may be enriched when peace comes, but the overriding necessities of war have precluded the full exploration of peacetime applications of this new knowledge. With the evidence presently at hand, however, it appears inevitable that many useful contributions to the well-being of mankind will ultimately flow from these discoveries when the world situation makes it possible for science and industry to concentrate on these aspects.

The fact that atomic energy can now be released on a large scale in an atomic bomb raises the question of the prospect of using this energy for peaceful industrial purposes. Already in the course of producing one of the elements much energy is being released, not explosively but in regulated amounts. This energy, however, is in the form of heat at a temperature too low to make practicable the operation of a conventional power plant. It will be a matter of much further research and development to design machines for the conversion of atomic energy into useful power. How long this will take no one can predict but it will certainly be a period of many years. Furthermore, there are many economic considerations to be taken into account before we can say to what extent atomic energy will supplement coal, oil,

and water as fundamental sources of power in industry in this or any other country. We are at the threshold of a new industrial art which will take many years and much expenditure of money to develop.

Because of the widespread knowledge and interest in this subject even before the war, there is no possibility of avoiding the risks inherent in this knowledge by any long-term policy of secrecy. Mindful of these considerations as well as the grave problems that arise concerning the control of the weapon and the implications of this science for the peace of the world, the Secretary of War, with the approval of the President, has appointed an Interim Committee to consider these matters. Membership of the Committee is as follows: The Secretary of War, Chairman; the Honorable James F. Byrnes, now Secretary of State; the Honorable Ralph A. Bard, former Under Secretary of the Navy; the Honorable William L. Clayton, Assistant Secretary of State; Dr. Vannevar Bush, Director of the Office of Scientific Research and Development and President of the Carnegie Institution of Washington; Dr. James B. Conant, Chairman of the National Defense Research Committee and President of Harvard University; Dr. Karl T. Compton, Chief of the Office of Field Service in the Office of Scientific Research and Development and President of the Massachusetts Institute of Technology; and Mr. George L. Harrison, Special Consultant to the Secretary of War and President of the New York Life Insurance Company. Mr. Harrison is alternate Chairman of the Committee.

The Committee is charged with the responsibility of formulating recommendations to the President concerning the post-war organization that should be established to direct and control the future course of the United States in this field both with regard to the research and developmental aspects of the entire field and to its military applications. It will make recommendations with regard to the problems of both national and international control. In its consideration of these questions, the Committee has had the benefit of the views of the scientists who have participated in the project. These views have been brought to the attention of the Committee by an advisory group selected from the leading physicists of the country who have been most

active on this subject. This group is composed of Dr. J. R. Oppenheimer, Dr. E. O. Lawrence, Dr. A. H. Compton, and Dr. Enrico Fermi. The Interim Committee has also consulted the representatives of those industries which have been most closely connected with the multitude of problems that have been faced in the production phases of the project. Every effort is being bent toward assuring that this weapon and the new field of science that stands behind it will be employed wisely in the interests of the security of peace-loving nations and the well-being of the world.

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WAR DEPARTMENT
Bureau of Public Relations
PRESS BRANCH
Tel. - RE 6700
Brs. 3425 and 4860

August 6, 1945

MEMORANDUM FOR THE PRESS:

In response to questions as to the damage accomplished by the atomic bomb dropped on Hiroshima, the War Department announced that it was as yet unable to make an accurate report. Reconnaissance planes state that an impenetrable cloud of dust and smoke covered the target area. As soon as accurate details of the results of the bombing become available, they will be released by the Secretary of War.

END

WAR DEPARTMENT
WASHINGTON, D. C.

IMMEDIATE RELEASE

First Test Conducted
In New Mexico
(This Release Issued
Locally in New Mexico)

Mankind's successful transition to a new age, the Atomic Age was ushered in July 16, 1945, before the eyes of a tense group of renowned scientists and military men gathered in the desertlands of New Mexico to witness the first end results of their $2,000,000,000 effort. Here in a remote section of the Alamogordo Air Base 120 miles southeast of Albuquerque the first man-made atomic explosion, the outstanding achievement of nuclear science, was achieved at 5:30 A.M. of that day. Darkening heavens pouring forth rain and lightning immediately up to the zero hour heightened the drama.

Mounted on a steel tower, a revolutionary weapon destined to change war as we know it, or which may even be the instrumentality to end all major wars was set off with an impact which signalized man's entrance into a new physical world. Success was greater than the most ambitious estimates. A small amount of matter, the product of a chain of huge specially constructed industrial plants, was made to release the energy of the universe locked up within the atom from the beginning of time. A fabulous achievement had been reached. Speculative theory, barely established in pre-war laboratories, had been projected into practicality.

This phase of the Atomic Bomb Project, which is headed by Major General Leslie R. Groves, was under the direction of Dr. J. R. Oppenheimer, theoretical physicist of the University of California. He is to be credited with achieving the implementation of atomic energy for military purposes.

Tension before the actual detonation was at a tremendous pitch. Failure was an ever-present possibility. Too great a success, envisioned by some of those present, might have meant an uncontrollable unusable weapon.

Final assembly of the atomic bomb began on the night of July 12 in an old ranch house. As various component assemblies arrived from distant points, tension among the scientists mounted apace. Coolest of all was the man charged with the actual assembly of the vital core, Dr. R. F. Bacher in normal times a Professor at Cornell University.

The entire cost of the project, representing the erection of whole cities and radically new plants spread over many miles of countryside, plus unprecedented experimentation, was represented in the pilot bomb and its parts. Here was the focal point of the venture. No other country in the world had been capable of such an outlay in brains and technical effort.

The full significance of these closing moments before the final factual test was <u>not</u> lost on these men of science. They fully knew their position as pioneers into another Age. They also knew that one false move would blast them and their entire effort into eternity. Before the assembly started a receipt for the vital matter was signed by Brigadier General Thomas F. Farrell, General Groves deputy. This signalized the formal transfer of the irreplaceable material from the scientists back to the Army, which had originally produced it at one of its great separation plants.

I ing final preliminary assembly, a bad few minutes developed when the assembly of an important section of the bomb was delayed. The entire unit was machine-tooled to the finest measurement. The insertion was partially completed when it apparently wedged tightly and would go no farther. Dr. Bacher, however, was undismayed and reassured the group that time would solve the problem. In three minutes time, Dr. Bacher's statement was verified and basic assembly was completed without further incident.

Specialty teams, comprised of the top men on specific phases of science, all of which were bound up in the whole, took over their specialized parts of the assembly.

On Saturday, July 14, the unit which was to determine the success or failure of the entire project was elevated to the top of the steel tower. All that day and the next, the job of preparation went on. In addition to the apparatus necessary to cause the detonation, complete instrumentation to determine all the reactions of the bomb was rigged on the tower.

The ominous weather which had dogged the assembly of the bomb had a very sobering affect on the assembled experts whose work was accomplished amid lightning flashes and peals of thunder. The weather, unusual and upsetting, blocked aerial observation of the test. It even held up the actual explosion scheduled at 4 A.M. for an hour and a half. For many months the approximate date and time had been set and had been one of the high level secrets of the best **kept secret of the entire war.**

Nearest observation point was set up 10,000 yards south of the tower where in a timber and earth shelter the controls for the test were located. At a point 17,000 yards from the tower at a point which would give the best observation the key figures in the atomic bomb project took their posts. These included General Groves, Dr. Vannevar Bush, head of the Office of Scientific Research and Development and Dr. James B. Conant, president of Harvard University.

Actual detonation was in charge of Dr. K. T. Bainbridge of Massachusetts Institute of Technology. He and Lieutenant Bush, in charge of the Military Police Detachment, were the last men to inspect the tower with its cosmic bomb.

At three o'clock in the morning the party moved forward to the control station. General Groves and Dr. Oppenheimer consulted with the weathermen. The decision was made to go ahead with the test despite the lack of assurance of favorable weather. The time was set for 5:30 A.M.

General Groves rejoined Dr. Conant and Dr. Bush and just before the test time, they joined the many scientists gathered at the Base Camp. Here all present were ordered to lie on the ground, face downward, **heads** away from the blast direction.

Tension reached a tremendous pitch in the control room as the deadline approached. The several observation points in the area were tied in to the control room by radio and with 20 minutes to go, Dr. S. K. Allison of Chicago University took over the radio net and made periodic time announcements.

The time Signals, "minus 20 minutes, minus fifteen minutes", and on and on increased the tension to the breaking point as the group in the control room, which included Dr. Oppenheimer and General Farrell, held their breaths, all praying with the intensity of the moment which will live forever with each man who was there. At "minus 45 seconds", robot mechanism took over and from that point on the whole great complicated mass of intricate mechanism was in operation without human control. Stationed at a reserve switch, however, was a soldier scientist ready to attempt to stop the explosion should the order be issued. The order never came.

At the appointed time, there was a blinding flash lighting up the whole area brighter than the brightest daylight. A mountain range three miles from the observation point stood out in bold relief. Then came a tremendous sustained roar and a heavy pressure wave which knocked down two men outside the control center. Immediately thereafter, a huge multi-colored surging cloud boiled to an altitude of over 40,000 feet. Clouds in its path disappeared. Soon the shifting substratosphere winds dispersed the now grey mass.

The test was over, the project a success.

The steel tower had been entirely vaporized. Where the tower had stood, there was a huge sloping crater. Dazed but relieved at the success of their tests, the scientists promptly marshalled their forces to estimate the strength of America's new weapon. To examine the nature of the crater, specially equipped tanks were wheeled into the area, one of which carried Dr. Enrico Fermi, noted nuclear scientist. Answer to their findings rest in the destruction effected in Japan today in the first military use of the atomic bomb.

Had it not been for the desolated area where the test was held and for the cooperation of the press in the area, it is certain that the test itself would have attracted far-reaching attention. As it was, many people in that area are still discussing the effect of the smash. A significant aspect, recorded by the press, was the experience of a blind girl near Albuquerque many miles from the scene, who, when the flash of the test lighted the sky before the explosion could be heard, exclaimed, "What was that?"

Interviews of General Groves and General Farrell give the following on-the-scene versions of the test. General Groves said: "My impressions of the night's high points follow: After about an hour's sleep I got up at 0100 and from that time on until about 0500 I was with Dr. Oppenheimer constantly. Naturally he was tense, although his mind was working at its usual extraordinary efficiency. I attempted to shield him from the evident concern of many of his assistants who were disturbed by the uncertain weather conditions. By 0400 we decided that we could probably fire at 0530. By 0400 the rain had stopped but the sky was heavily overcast. Our decision became firmer as time went on.

"During most of these hours the two of us journeyed from the control house out into the darkness to look at the stars and to assure each other that the one or two visible stars were becoming brighter. At 0510 I left Dr. Oppenheimer and returned to the main observation point which was 17,000 yards from the point of explosion. In accordance with our orders I found all personnel not otherwise occupied massed on a bit of high ground.

"Two minutes before the scheduled firing time all persons lay face down with their feet pointing towards the explosion. As the remaining time was called over the loud speaker from the 10,000-yard control station there was complete awesome silence. Dr. Conant said he had never imagined seconds could be so long. Most of the individuals in accordance with orders shielded their eyes in one way or another.

"First came the burst of light of a brilliance beyond any comparison. We all rolled over and looked through dark glasses at the ball of fire. About forty seconds later came the shock wave followed by the sound, neither of which seemed startling after our complete astonishment at the extraordinary lighting intensity.

"A massive cloud was formed which surged and billowed upward with tremendous power, reaching the substratosphere in about five minutes.

"Two supplementary explosions of minor effect other than the lighting occurred in the cloud shortly after the main explosion.

" ɹ cloud traveled to a great height first in the f... of a ball, then mushroomed, then changed into a long trailing chimney-shaped column and finally was sent in several directions by the variable winds at the different elevations.

"Dr. Conant reached over and we shook hands in mutual congratulations. Dr. Bush, who was on the other side of me, did likewise. The feeling of the entire assembly, even the uninitiated, was one of profound awe. Drs. Conant and Bush and myself were struck by an even stronger feeling that the faith of those who had been responsible for the initiation and the carrying on of this Herculean project had been justified."

General Farrell's impressions are: "The scene inside the shelter was dramatic beyond words. In and around the shelter were some twenty odd people concerned with last minute arrangements. Included were Dr. Oppenheimer, the Director, who had borne the great scientific burden of developing the weapon from the raw materials processed in Tennessee and the State of Washington, and a dozen of his key assistants, Dr. Kistiakowsky, Dr. Bainbridge, who supervised all the detailed arrangements for the test; the weather expert, and several others. Besides these, there were a handful of soldiers, two or three Army officers and one Naval officer. The shelter was filled with a great variety of instruments and radios.

"For some hectic two hours preceding the blast, General Groves stayed with the Director. Twenty minutes before zero hour, General Groves left for his station at the base camp, because it provided a better observation point.

"Just after General Groves left, announcements began to be broadcast of the interval remaining before the blast to the other groups participating in and observing the test. As the time interval grew smaller and changed from minutes to seconds, the tension increased by leaps and bounds. Everyone in that room knew the awful potentialities of the thing that they thought was about to happen. The scientists felt that their figuring must be right and that the bomb had to go off but there was in everyone's mind a strong measure of doubt.

"We were reaching into the unknown and we did not know what might come of it. If the shot were successful, it was a justification of the several years of intensive effort of tens of thousands of people--statesmen, scientists, engineers, manufacturers, soldiers, and many others in every walk of life.

"In that brief instant in the remote New Mexico desert, the tremendous effort of the brains and brawn of all these people came suddenly and startlingly to the fullest fruition. Dr. Oppenheimer, on whom had rested a very heavy burden, grew tenser as the last seconds ticked off. He scarcely breathed. He held on to a post to steady himself. For the last few seconds, he stared directly ahead and then when the announcer shouted "Now!" and there came this tremendous burst of light followed shortly thereafter by the deep growling roar of the explosion, his face relaxed into an expression of tremendous relief. Several of the observers standing back of the shelter to watch the lighting effects were knocked flat by the blast.

"The tension in the room let up and all started congratulating each other. Everyone sensed "This is it!" No matter what might happen now all knew that the impossible scientific job had been done. Atomic fission would no longer be hidden in the cloisters of the theoretical physicists' dreams. It was almost full grown at birth. It was a great new force to be used for good or for evil. There was a feeling in that shelter that those concerned with its nativity should dedicate their lives to the mission that it would always be used for good and never for evil.

L. .. Kistiakowsky threw his arms around Dr. Oppenheim..r and embraced him with shouts of glee. Others were equally enthusiastic. All the pent-up emotions were released in those few minutes and all seemed to sense immediately that the explosion had far exceeded the most optimistic expectations and wildest hopes of the scientists. All seemed to feel that they had been present at the birth of a new age--The Age of Atomic Energy--and felt their profound responsibility to help in guiding into right channels the tremendous forces which had been unlocked for the first time in history.

"As to the present war, there was a feeling that no matter what else might happen, we now had the means to insure its speedy conclusion and save thousands of American lives. As to the future, there had been brought into being something big and something new that would prove to be immeasurably more important than the discovery of electricity or any of the other great discoveries which have so affected our existence.

"The effects could well be called unprecedented, magnificent, beautiful, stupendous and terrifying. No man-made phenomenon of such tremendous power had ever occurred before. The lighting effects beggard description. The whole country was lighted by a searing light with the intensity many times that of the midday sun. It was golden, purple, violet, gray and blue. It lighted every peak, crevasse and ridge of the nearby mountain range with a clarity and beauty that cannot be described but must be seen to be imagined. It was that beauty the great poets dream about but describe most poorly and inadequately. Thirty seconds after the explosion came first, the air blast pressing hard against the people and things, to be followed almost immediately by the strong, sustained, awesome roar. Words are inadequate tools for the job of acquainting those not present with the physical, mental and psychological effects. It had to be witnessed to be realized."

END

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WAR DEPARTMENT
WASHINGTON, D. C.

IMMEDIATE RELEASE

Labor Plays Vital
Role In Activity Of
Manhattan District

Once the magnitude of the atomic bomb project had been established, manpower immediately was recognized as one of the key ingredients which would spell the difference between success or failure. The Army was faced with its two largest construction jobs, the largest in modern times and possibly the largest in history. In addition to the usual obstacles, a stepped-up schedule had to be met, time being of the essence in a grim race against the unknown schedule of the Germans.

The project, which is operated by the Army under the "cover" name of the Manhattan Engineer District of the Corps of Engineers, had an unusual obstacle to face. Security was paramount. At this time, national competition for manpower was acute. Industries and war projects were vieing with each other in this competition, citing the key part their people were playing in the war effort. No such inducement could be made to attract labor to the Atomic Bomb Project. Nothing whatsoever could be told in recruitment beyond the fact that the work would be in the top interests of the war endeavor.

At first, the general attitude was that the project's construction was just another job -- or that "business as usual" was the order of the day. Trade unions, the War Manpower Commission, plus the Manhattan District's expediters teamed to achieve what at times seemed impossible, provision of adequate manpower. Heading this program was Colonel Clarence D. Barker, chief of the Labor Division of the Office of the Chief of Engineers. (see attachment for brief biography.)

By the time the Manhattan District began its large scale recruiting activities, the War Manpower Commission and its agencies were well established and labor recruiting was carried on primarily through their services. The U. S. Employment Service utilized the American Federation of Labor to recruit and move skilled tradesmen. The common laborers' union, however, did not have sufficient membership to supply demands and these were recruited through the U. S. E. S. from the general labor market.

Types of personnel necessary to man the project covered practically all occupational skills. These ranged from common laborers, carpenters and plumbers to glass blowers, chemists and physicists. The mass of personnel, however, fell into two general classes: construction laborers and mechanics and plant operators.

Recruitment of special skills such as chemists, physicists, laboratory technicians and others presented many problems. As a whole, they were as difficult to find as the larger numbers of the more common skills. The most difficult problems in this phase were handled personally by Dr. Samuel Arnold, Dean of Men at Brown University, himself an eminent scientist.

Much of the supervisory and technical personnel were recruited by the many contractors of the Manhattan District within their own organizations. Many of the top scientists were brought to the project through contracts placed with various universities.

The recruiting of operations people was particularly a difficult problem because of the necessity of training all new people for the work. It necessitated the stripping of the operating con-

tr(ors of a great many of the key men of their organ. ations which in view of the increased activities brought on by the war programs other than that connected with the Manhattan District had made the situation more complex.

This was the overall personnel procurement program of the Manhattan Engineer District. But there were many problems which at times seemed to defy solution. Had it not been for the complete coordination of the whole problem, several situations could have progressed to disastrous proportions.

The construction, by reasons of its immensity and uniqueness and also because of a great many new practices developed which had never been used in the industry before necessitated the support of the top labor leaders. On several occasions it was necessary that Judge Robert Patterson, the Under Secretary of War call in the leaders, including the President of A. F. of L., Mr. William Green and the General Presidents of several Building Trades Unions to seek their cooperation and to give them a better understanding of the problems involved. Mr. Philip Murray, CIO Chief, aided greatly.

They, in a great many instances, broke down conditions of long standing in order that the completion on schedule be not interfered with. Judge Patterson also gave a great deal of his personal time to this phase when it was required.

By June 15, 1944, the shortage of electricians at the Hanford Engineer Works, Washington, and the Clinton Engineer Works, Tennessee, had become so acute that work schedules were seriously endangered. Twenty-five hundred electricians had to be recruited. A plan was worked out by the Under Secretary of War and Edward J. Brown, president of the International Brotherhood of Electrical Workers. Electricians would be borrowed from other employers for a period of 90 days. The National Electrical Contractors Association was called in and a carefully worded news release for security reasons was issued by the War Department stating the project's predicament. In two months' time, the bottleneck was completely and satisfactorily broken. The plan was continued throughout construction.

An acute shortage of machinists and toolmakers late in 1943 resulted in stringent measures. The New Mexico installation urgently needed 190 men in these skills. The War Manpower Commission issued instructions to its regional directors on October 21, 1943, authorizing them to certify certain workers as available to the Manhattan District even over the protests of their employers, many of whom were in other essential war programs. With this authority as a basis, special recruiting teams composed of an Army officer, a recruiter, and a security agent procured the workers needed in one month.

The Manhattan District experienced more unusual problems of turnover and absenteeism than other war industries and installations. This was directly due to the isolation of the projects, the extended length of the construction period, expansions in the construction program, security, and limited housing and crowded transportation facilities.

A rigorous campaign was set up to solve these problems. Exit interviews salvaged many. In hundreds of cases, competent employees were either persuaded to go back to work or to take other jobs on the same project. Employees made available by reduction in force were also picked up in this manner and directed to other jobs on the project or in some cases returned to essential industry. These interviews also determined why workers were leaving and set up a basis for corrective action.

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A companion problem to turnover was absenteeism. Repeated absenteeism was the greatest single cause for terminations. War

economy with its larger incomes resulting from higher wages and longer hours provided less compulsion for steady work than the lower incomes of peace time. Therefore, every effort was made, within the limits of the isolated areas where the projects were established, to better living and working conditions.

It was soon found that job dissatisfaction as a whole hinged on lack of facilities present in normal American communities. To the seasoned construction worker, conditions were average. To the men having their first fling at construction and to the men and women who took production jobs, life was markedly different. The Army attempted to make conditions more normal by providing recreation facilities as movie houses, baseball diamonds, tennis courts and recreation halls. These facilities greatly assisted in keeping workers on the job.

The Army also provided subsidized transportation, nursery schools to release working mothers, tire and gasoline rationing boards and conveniently located shopping facilities.

The following unions were those most closely associated with the construction phases of the project:

Int'l Ass'n of Heat and Frost Insulators and Asbestos Workers
Int'l Brotherhood of Boiler Makers, Iron Ship Builders and Helpers
Bricklayers, Masons and Plasterers' Int'l Union
United Brotherhood of Carpenters and Joiners
Int'l Brotherhood of Electrical Workers
Int'l Union of Elevator Constructors
Int'l Union of Operating Engineers
Int'l Ass'n of Bridge, Structural and Ornamental Iron Workers
Int'l Hod Carriers, Bldg., and Common Laborers Union
Wood, Wire and Metal Lathers' Int'l Union
Brotherhood of Painters, Decorators and Paperhangers
Operative Plasterers and Cement Finishers Int'l Ass'n
United Slate, Tile and Composition Roofers, Damp & Waterproof Workers Ass'n
United Ass'n of Journeymen Plumbers and Steam Fitters
Sheet Metal Workers' International Ass'n
Int'l Brotherhood of Teamsters, Chauffers, Warehousemen and Helpers
Building Trades Dept. of AFL
Int'l Brotherhood of Firemen and Oilers

Colonel Clarence D. Barker,

Chief, Labor Division, Office of the Chief of Engineers.

****

Born - Paterson, New Jersey - Nov. 4, 1902.

Educated in Providence schools
Attended Brown University and
Rhode Island School of Design

From 1923 to 1926, worked in South America on Railroad irrigation projects, as well as in Central America, including work on the Pan-American Highway at El Salvador.

From 1926 to 1934, worked on highway engineering and construction throughout Rhode Island.

In 1934, attended the Coast Artillery School at Fortress Monroe, Virginia; he was originally commissioned as a 2nd Lt. CA-Res., in 1925. He was assigned to Civilian Conservation Corps construction until 1939 when he returned to civil construction in Rhode Island.

In September 1940, recalled to active duty as a captain with the Construction Division of the Quartermaster General's Office, and in June 1941 was transferred to the Corps of Engineers.

Charged with the labor relations of the entire Pacific Coast during the formative and most vital stage of the construction period representing the Corps of Engineers. In April 1942, was assigned as Chief, Labor Relations Branch, Construction Division in the Office of the Chief of Engineers, Washington, D. C.

WASHINGTON, D. C.

IMMEDIATE RELEASE

Atomic Energy Source
Of Inexhaustible Power

Atomic energy, harnessed for the first time by our scientists for use in atomic bombs against the Japanese armed forces, is the practically inexhaustible source of power that, it is believed, enables our sun to supply us with heat, light, and other forms of radiant energy without which life on earth would not be possible.

It is also the same energy stored in the atoms of the material universe, that, according to current theory, keeps the stars, bodies much larger than our sun, radiating their enormous quantities of light and heat for billions of years, instead of burning themselves out in periods measured only in thousands of years.

The existence of atomic energy was recognized by Einstein about forty years ago on purely theoretical grounds, as an outgrowth of his famous relativity theory, according to which velocity brings about an increase in mass, this increase bearing a direct relationship to the velocity of light.

From the formula for this relationship Einstein derived his famous mathematical equation that revealed the equivalence between mass and energy. It showed that any given quantity of mass was the equivalent of a specific amount of energy, and vice versa.

In this equation he showed the existence of a definite relationship between matter, energy and the velocity of light.

In this formula the letter "M" stands for mass in grams; the letter "E" represents energy in ergs, while the letter "C" stands for the velocity of light in centimeters per second. The energy content of any given quantity of substance, the formula states, is equal to the mass of the substance (in terms of grams), multiplied by the square of the velocity of light (in terms of centimeters per second). The velocity of light is 300,000 Kilometers, or 30,000,000,000 (thirty billion) centimeters, per second.

Take one gram of any substance. According to the Einstein formula the amount of energy ("E") in ergs in this mass is equal to 1 (the mass of the substance in grams) multiplied by 30,000,000,000 squared. In other words, the energy content of one gram of matter equals 900 billion billion ergs.

The energy we are now able to utilize in the atomic bombs, at 100 percent efficiency, constitutes only one-tenth of one percent of the total energy present in the material. But even one-hundredth of one percent is still the most destructive force by far on this earth.

Atomic energy, released through the splitting of atoms, differs radically from ordinary types of energy hitherto available to man in that it involves annihilation of matter. When an atom is split part of its matter is converted into energy.

This is materially different from obtaining power by the use of a water wheel, for example, or by the burning of coal or oil. In the case of the water wheel the water molecules taking part remain entirely unchanged. They simply lose potential energy as they pass from the dam to the tailrace.

In the case of burning coal or oil a more intense process takes place, as the atoms of carbon, hydrogen, and oxygen (of which the coal and oil molecules are composed) are regrouped by combustion into new molecules forming new substances. The atoms themselves, however, still remain unchanged--they are still carbon, hydrogen and oxygen. None of them, as far as can be measured, lose any part of their mass.

In the case of atomic energy, however, the atom itself completely changes its identity, and in this process of change it loses part of its mass, which is converted into energy. The amount of energy obtained is directly proportional to the amount of atomic mass destroyed. The sun, for example, is believed to obtain its energy through the partial destruction of its hydrogen, through a complex process in which the hydrogen is converted into helium.

In this process four hydrogen atoms, each with an atomic mass of 1.008 (total, 4.032 atomic mass units), combine to form one helium atom, which has an atomic mass of 4.003. This represents a loss in mass on the part of the four hydrogen atoms of 0.029 atomic mass units, which is converted into pure energy. The amount of energy liberated in this process by the enormous quantities of hydrogen in the sun represents an actual loss of the sun's mass at the rate of 4,000,000 tons per second, a mere speck of dust in relation to the sun's total mass of two billion billion billion tons.

By the use of its atomic energy the sun has been able to give off its enormous amounts of radiation for a period estimated at ten billion years, and its mass at the present rate of burning is enough to last 15,000 billion years more, though, of course, the amount of its radiation would be greatly reduced long before that in proportion to the decrease of its mass. Radiations in amounts sufficient to support life on earth are estimated to continue for some ten to a hundred billion years longer.

The development of the atomic bomb constitutes the most dramatic proof so far offered for the correctness of the theory of relativity and also marks the first time it has been put to practical use outside the laboratory.

WAR DEPARTMENT
WASHINGTON, D. C.

IMMEDIATE RELEASE

Atomic Power Usage
Once Thought Impossible

Ten years ago doubt was expressed that it would ever be possible to utilize atomic power on a practical scale. This was based on the methods of atom-smashing then in use, in which billions and billions of atomic bullets had to be fired to release the energy in only a few atoms. That was the only known method until the beginning of 1939. Under these circumstances the chances of utilizing atomic energy on a practical scale were as far from realization as a flight to Mars.

Early in January, 1939, came the discovery of what is known as "uranium fission," one of the greatest discoveries in the history of science, that changed the picture overnight. It was found that a rare twin, or isotope, of the element uranium, having an atomic weight of 235, could be split in two nearly equal halves, releasing a tremendous amount of atomic energy in the process.

The amount of energy released per atom was so great that it was at once realized that this substance, if it could be separated from its twin element, uranium 238 (u-238), held tremendous possibilities as the most powerful war weapon ever made, and also, if expense was disregarded, as the most tremendous source for power known on earth.

The trouble was that U-235 constituted only seven-tenths of one percent of the uranium metal found in nature and it came so inextricably mixed up with the 99.3 percent of U-238 that it could not be separated on a practical scale by any method than known.

The story of this discovery is one of the most dramatic in the history of science. It began in Germany in 1938. It is now making history over Japan.

The principal character in the story is Dr. Lise Meitner, a woman physicist working at the Kaiser-Wilheim Institute in Berlin. With her associates, Dr. Otto Hahn and Dr. F. Strassmann, chemists, she was carrying on experiments in which she fired neutrons (atomic particles without electric charge) into the hearts of uranium atoms. The uranium thus bombarded was submitted to chemical analysis.

To their great amazement they found the element barium in the debris of the smashed uranium atoms. True, they had put some barium in there as a chemical "carrier," to precipitate a powerful new radioactive substance present in the debris, a substance much more powerful than radium. But when they tried to separate the barium from the mysterious radioactive substance it could not be done by the best chemical means known. There could be only one inescapable conclusion--the mysterious substance was itself barium, a radioactive barium that had been there before they had put in the barium that was to serve as a "carrier."

Where did this super-radioactive barium come from? It was a scientific mystery of the first order, much like discovering a chicken hatch out from a duck's egg. Nothing like it had ever been observed before anywhere.

Before the mystery could be solved Lise Meitner was exiled from Germany as a "non-Aryan." She went first to Copenhagen, her most important life's work interrupted at its most exciting stage. Meantime, on January 6, 1939, Drs. Hahn and Strassmann reported the strange phenomenon in a German scientific publication, in which they stated that, while they could not doubt the presence of the radioactive barium, they could not bring themselves to believe that it came from the uranium. It was much too revolutionary a concept for them to accept.

Lise Meitner, more imaginative, faced the facts and took the consequences. Since the radioactive barium was not there to begin with, then its appearance could lead to only one inescapable conclusion,--it came from the uranium as the result of the splitting of the uranium atom into two nearly equal halves. Uranium, the heaviest of the elements, has an atomic number of 92 and an atomic weight of 238. Barium has an atomic number of 56 and the atomic weight of 137. The uranium then must have been split into two lighter elements, one of which was the mysterious barium.

If that were so, Dr. Meitner knew, the splitting must be accompanied by the release of tremendous amounts of atomic energy, greater by far than had ever been achieved on earth. It would mean at last the key to atomic energy.

She lost no time in communicating her results to her friend, Dr. Frisch, of Copenhagen, former associate of Dr. Niels Bohr, one of the world's greatest scientists. Dr. Frisch, himself a physicist, and Dr. Meitner, repeated the experiments. Sure enough, once again there was the radioactive barium, and, wonder of wonders, here in their apparatus, set specifically to watch for it, they saw for the first time the gushing of a veritable fountain of atomic energy.

Dr. Frisch cabled the news at once to Dr. Bohr, who was at that time in America. On Tuesday, January 24, 1939, the famous experiment was repeated at Columbia University by Dr. Bohr and Professor Enrico Fermi, both Nobel Laureates in physics, and Professor John R. Dunning. Later that week, Friday, January 27th, Dr. Bohr dramatically announced the results of these experiments at a meeting of physicists at George Washington University, Washington, D. C.

It so happened that young Dr. Philip H. Abelson had been working on the same problem at the University of California and was just as puzzled as Dr. Meitner had been with the results he was getting. Two weeks later and he would probably have made the discovery.

At that time it was believed that it was ordinary uranium of atomic weight 238 that was being split. But this gave rise to a number of mysteries. At a meeting of the American Physical Society at Columbia University, February 17, 1939, Dr. Bohr, Dr. John A. Wheeler, of Princeton, and Dr. Fermi offered a theoretical explanation of the puzzle: It was not the uranium 238 but the much rarer uranium twin, U-235, that held the key to the release of atomic energy.

This was not proved experimentally until a year later, when a minute amount of U-235 was isolated. But in March, 1939, a few weeks after the meeting at Columbia, Professor Fermi, accompanied by Dean George B. Pegram, of Columbia, went to Washington to interest Army and Navy authorities in U-235 as a possible military weapon.

Dr. Fermi was the first to start firing atomic bullets at uranium, work for which he won the Nobel Prize. A very thin strip of aluminum foil in his apparatus, he now realizes, prevented him from making the discovery of uranium fission as far back as 1934. Now, he says, he's happy that fate, in the form of a thin strip of aluminum foil, prevented him from making the discovery at that time. Had that happened, the Germans most likely would have had atomic energy bombs in time to begin their war with it.

WAR DEPARTMENT
WASHINGTON, D. C.

IMMEDIATE RELEASE

Atomic Energy Harnessed

The energy of the atom has been harnessed to produce the deadliest weapon ever devised, the atomic bomb, the War Department today announced shortly after the first of the aerial missiles cascaded upon a Japanese military target.

The initial combat use of the bomb culminated three years of intensive effort on the part of science and industry, working in cooperation with the Military. It is heralded as the greatest achievement of the combined efforts of science, industry, labor and the military in all history.

President Truman and Secretary of War Henry L. Stimson made the first announcements of the new weapon, declaring that the atomic bomb has an explosive force such as to stagger the imagination. Improvements were revealed as forthcoming which will increase several fold the present effectiveness.

While the use in combat has permitted a slight relaxation in the security that has cloaked the project, the War Department declined for security reasons to disclose the exact methods by which the bombs are produced or the nature of their action and requested that the press and radio refrain from disclosing other information as well as all those connected with the Project, other than that information released.

In broad outline, the War Department made the following disclosures:

Late in 1939 the possibility of using atomic energy for military purposes was brought to the attention of President Roosevelt, who appointed a committee to survey the problem;

In June 1942 sufficient progress had been made to warrant a great expansion of the project and the assumption of its direction by the War Department with Major General Leslie R. Groves in executive charge;

By December 1942 a decision had been reached to proceed with plant construction on a large scale; two of these plants were to be located at the Clinton Engineer Works in Tennessee and a third at the Hanford Engineer Works in the State of Washington. A special laboratory to deal with the many technical problems involved was to be located in an isolated area in the vicinity of Santa Fe, New Mexico, under the direction of Dr. J. Robert Oppenheimer;

Certain other manufacturing plants much smaller in scale were located in the United States and Canada and the facilities of certain laboratories of the Universities of California, Chicago, Columbia, Iowa State College and at other schools as well as certain industrial laboratories were utilized;

Congress has appropriated up to June 30, 1945 a total of $1,950,000,000 for the operation of the huge project;

The atomic bomb has been developed with the full knowledge

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Congress has appropriated up to June 30, 1945 a total of $1,950,000,000 for the operation of the huge project;

The atomic bomb has been developed with the full knowledge of and cooperation of the United Kingdom and Canada and substantial patent control has been accomplished in these countries;

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Uranium is the essential ore in the production of the weapon and steps have been taken and will continue to be taken to insure adequate supplies of this mineral.

The series of discoveries which led to development of the atomic bomb started at the turn of the century when radio-activity became known to science. Prior to 1939 the scientific work in this field was world-wide, but more particularly so in the United States, the United Kindgom, Germany, France, Italy and Denmark. One of Denmark's great scientists, Dr. Neils Bohr, a Nobel prize winner, was whisked from the grasp of the Nazis in his occupied homeland and later assisted in developing the atomic bomb.

It is known that Germany worked desperately to solve the problem of controlling atomic energy.

Britain, suffering repeated air attacks early in the war, agreed to a concentration of the atomic bomb project in the United States and transferred many of her scientists to this Country to assist.

The attention of President Roosevelt was invited to the potentialities of the atomic bomb in 1939. Research which had been conducted on a small scale with Navy funds was put on a greatly expanded basis. At the end of 1941 progress had been sufficient to warrant additional expansion. In the meantime the project had been placed under the direction of the Office of Scientific Research and Development, with Dr. Vannevar Bush, Director of OSRD, in charge. At the same time the President appointed a General Policy Group, consisting of the then Vice-President Henry A. Wallace, Secretary of War Henry L. Stimson, General George C. Marshall, Dr. James B. Conant, and Dr. Bush.

The General Policy Group recommended in June 1942 that the atomic bomb project be greatly expanded and placed under the direction of the War Department. This action was taken and Major General Groves, experienced and resourceful U. S. Army construction engineer, placed in complete control. At the same time, in addition to the General Policy Group there was appointed a Military Policy Committee consisting of Dr. Bush as chairman with Dr. Conant as his alternate, Lt. General Wilhelm D. Styer, USA, and Rear Admiral William R. Purnell, USN.

The need for the weapon and its potential value led to the decision in December 1942 to start the construction of an industrial empire that was to eventually consist of entire cities and employ upwards of 125,000.

Two of the plants were constructed on a 59,000-acre government reservation eighteen miles west of Knoxville, Tennessee. It assumed the name of Oak Ridge and became the fifth largest city in the State.

The third plant was erected at the Hanford Engineer Works on a 450,000-acre government tract fifteen miles northwest of Pasco, Washington. This became the city of Richland.

A special laboratory was established in an isolated area of New Mexico, about 30 miles northwest of Santa Fe.

The ramifications of the Atomic bomb project reached such proportions that in August 1943 it was decided to establish a Combined Policy Committee, composed at the outset of Secretary

to insure adequate supplies of this mineral.

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It is known that Germany worked desperately to solve the problem of controlling atomic energy.

Britain, suffering repeated air attacks early in the war, agreed to a concentration of the atomic bomb project in the United States and transferred many of her scientists to this Country to assist.

The attention of President Roosevelt was invited to the potentialities of the atomic bomb in 1939. Research which had been conducted on a small scale with Navy funds was put on a greatly expanded basis. At the end of 1941 progress had been sufficient to warrant additional expansion. In the meantime the project had been placed under the direction of the Office of Scientific Research and Development, with Dr. Vannevar Bush, Director of OSRD, in charge. At the same time the President appointed a General Policy Group, consisting of the then Vice-President Henry A. Wallace, Secretary of War Henry L. Stimson, General George C. Marshall, Dr. James B. Conant, and Dr. Bush.

The General Policy Group recommended in June 1942 that the atomic bomb project be greatly expanded and placed under the direction of the War Department. This action was taken and Major General Groves, experienced and resourceful U. S. Army construction engineer, placed in complete control. At the same time, in addition to the General Policy Group there was appointed a Military Policy Committee consisting of Dr. Bush as chairman with Dr. Conant as his alternate, Lt. General Wilhelm D. Styer, USA, and Rear Admiral William R. Purnell, USN.

The need for the weapon and its potential value led to the decision in December 1942 to start the construction of an industrial empire that was to eventually consist of entire cities and employ upwards of 125,000.

Two of the plants were constructed on a 59,000-acre government reservation eighteen miles west of Knoxville, Tennessee. It assumed the name of Oak Ridge and became the fifth largest city in the State.

The third plant was erected at the Hanford Engineer Works on a 450,000-acre government tract fifteen miles northwest of Pasco, Washington. This became the city of Richland.

A special laboratory was established in an isolated area of New Mexico, about 30 miles northwest of Santa Fe.

The ramifications of the Atomic bomb project reached such proportions that in August 1943 it was decided to establish a Combined Policy Committee, composed at the outset of Secretary of War Stimson, Dr. Bush, Dr. Conant for the United States; Field Marshal Sir John Dill and Colonel J. J. Llwwellin, for the United Kingdom; and Mr. C. D. Howe for Canada. Col. Llewellin, was later replaced by Sir Ronald I. Campbell who in turn was succeeded by the Earl of Halifax; the late Field Marshal Dill was

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succeede y Field Marshal Sir Henry Maitland Wilson. The U ted States members have had as their scientific adviser, Dr. Richard C. Tolman; the British, Sir James Chadwick; and the Canadian, Dean C. J. Mackenzie.

The dropping of the first atomic bomb upon a Japanese Military target brings to fruition a spectacular new discovery in the field of science. In its development it appears that in the decades ahead there will ultimately flow multiple benefits for all mankind. To insure a study of the best use of the discovery the Secretary of War has appointed an Interim Committee consisting of the following:

The Secretary of War, Chairman, James F. Byrnes, now Secretary of State, Ralph A. Bard, former Under-Secretary of the Navy, William L. Clayton, assistant Secretary of State, Dr. Bush, Dr. Conant, Dr. Karl T. Compton, President of the Massachusetts Institute of Technology, and George L. Harrison, alternate chairman, special consultant to the Secretary of War and President of the New York Life Insurance Company. Assisting this group as a scientific panel are Dr. J. R. Oppenheimer, Dr. E. O. Lawrence, Dr. A. H. Compton and Dr. Enrico Fermi.

WAR DEPARTMENT
WASHINGTON, D. C.

IMMEDIATE RELEASE

This release is prepared as background information on the town of Oak Ridge, Tenn., the site of the Clinton Engineer Works, one phase of this Government's Atomic Bomb Project.

OAK RIDGE, Tenn. During the past thirty-six months, one of the most remarkable cities in the world has come into being on a site where only oak and pine trees dotting small farms had been before.

In three years, the town of Oak Ridge, 18 miles west of Knoxville, has not only grown from nothing to the fifth largest city in Tennessee, with a population of nearly 75,000, but in the course of this time has managed to become one of the historic cities of America, a town that will ever remain associated with the greatest secret project of World War 11.

Oak Ridge is the heart of this Government's Atomic Bomb Project, which, under the camaflouged name of the Manhattan Engineer District, operated by the War Department under the immediate direction of Major General Leslie R. Groves in Washington and Colonel Kenneth D. Nichols at Oak Ridge, succeeded in harnessing atomic energy into the most devastating weapon in history, and in so doing, built a great industrial empire.

Oak Ridge, situated on what is known as Black Oak Ridge, one of five principal oak and pine-covered ridges in the reservation area, was named by Colonel (now Brigadier-General) J. C. Marshall, former District Engineer of the Manhattan District. The name was chosen from among many suggested by workers. General Marshall was succeeded as District Engineer by Colonel Nichols.

Few persons outside of that section of the South in which Oak Ridge is situated and fewer throughout the country knew much about Oak Ridge, even though an industry which was the best-kept secret of the war, was being built around it. In addition to the towns inhabitants, some 200,000 residents of Knoxville knew that Oak Ridge had been built around a vital, secret war project. But they learned to avoid discussions involving secret projects and cooperated in maintaining security. Thousands of workers who had been employed on construction and then left for other parts when they were no longer needed, refrained from overly discussing Oak Ridge and

its plants with strangers outside the reservation.

In many respects, Oak Ridge is unique in history. There have been other "hidden" cities, but never one that has grown so swiftly under the pressure of war and secrecy. What is probably most remarkable about Oak Ridge is the fact that the inhabitants themselves, with the exception of a few key men, knew nothing about the city's purpose, what it was built for or what its giant plants were producing. This was not only true of the families of those employed in the plants but also of the workers themselves. The work was so compartmentalized that each worker knew only his own job and had not the slightest inkling of how his part fitted the whole.

Only certain top-ranking scientists, engineers and Army officers knew the full implications of the project, but even in such cases there were limitations. The head of one plant, for instance, was kept completely insulated from other plants where different processes and methods were used.

Not only did the workers not know what they were producing in the mammoth plants that use tremendous amounts of electrical energy, but the vast majority could not be sure they were actually producing anything. They would see hugh quantities of material going into the plants but nothing coming out. This created an atmosphere of unreality, in which giant plants operated feverishly day and night to produce nothing that could be seen or touched.

Oak Ridge is the residential center for the workers in one sub-division of the Manhattan Engineer District, known as Clinton Engineer Works. The Clinton Engineer Works covers a hugh Government reservation of 59,000 acres of which Oak Ridge proper covers about eight square miles. Oak Ridge is the administrative center for the entire Manhattan District, which includes the 631-square-miles Hanford Engineer Works near Pasco, Wash. and other divisions.

The plants at Clinton Engineer Works, where raw material is separated by three different methods, include more than 425 buildings. The town of Oak Ridge has nearly 10,000 family units, 13,000 dormitory spaces, more than 5,000 trailers and more than 16,000 hutment and barracks spaces. Its population of nearly 75,000 makes it the fifth largest in Tennessee, topped only by Memphis, Nashville, Knoxille, and Chattanooga.

The site, acquired in the Autumn of 1942, was chosen because of its accessibility to power and water, its remoteness from the Coast and its isolation. The first family moved into its trailer home on July 3, 1943, and the first house was occupied on July 27 of that year. At the height of its construction period, one thousand houses were built per month.

With the bulldozers, the carpenters, plumbers, and electricians also came books, musical instruments, artists' paint and brushes and all the other paraphernalia of American culture - a culture reflecting every section of the country, for Oak Ridge is

an extremely cosmopolitan place, its residents coming from virtually every state in the Union.

Simultaneously with the roads and streets, sewers and waterworks went the building of schools, a library, theatres, a hospital, a dental clinic, recreation centers and athletic facilities. By June 1945, the town had one high school and eight elementary schools with another grammar shcool under construction. At the Spring term of 1945, there were over 11,000 pupils and 317 teachers. The Public Library had around 9,000 books and 10,000 members holding cards. A hospital of 300 beds was built at a cost of over $1,000,000 and a dental service building erected at a cost of $92,000. The total outlay for schools, including several existing rural schools taken over at the start of the work, was $3,700,000.

Hospitalization and medical care is provided through an insurance plan, the worker paying $2 per month for all hospital and medical bills, except home care. Under the direction of Colonel Stafford Warren, formerly professor of Radiology, School of Medicine and Dentistry, University of Rochester, and a staff of Army Doctors, the health, medical and dental facilities rank among the best.

The medical insurance plan is on a voluntary basis and now pays for itself, though it required a subsidy for the first six months. Subscription is by groups, such as chemists, physicists and administrative personnel. The overhead cost is 16 per cent.

More than 300 miles of roads either have been built or improved in the area. Around 55 miles of railroad were built on the project to transport equipment and material. Buses on the area number nearly 350, while an additional 400 buses operate off the area to carry non-resident workers at the project to and from their homes. From July 1944 through June 1945 the on area buses carried 22,252,479 passengers. During June 1945 they carried 2,401,070 passengers.

There are 17 different organized religious bodies at Oak Ridge, At first all worshipped at different times at one Colonial-style little church called Chapel on the Hill which rests against a wooded background. Later, another church building was constructed and a third was in process of being built this summer. A school and theatre auditoriums also are utilized for religious services.

Oak Ridge has 13 supermarkets, nine drug stores and seven theatres. It has 17 major eating facilities, including nine cafeterias, five restaurants and three lunch rooms. There are also a number of minor eating establishments.

Oak Ridge has a high health standard and a low crime record, with hardly any crimes of violence. Its population is probably the youngest age group in the country and has a very high birth rate, believed among the highest in the country.

At the time the War Department took over, there were around 3,750 residents on the land which was taken into the reservation. These were scattered over the entire 59,000 acres, which included the hamlets of Robertsville, Wheat and Scarboro and a large number of small farms on a total of over 800 separate tracts of land.

The area was among the first in Tennessee to be settled and the Government went to great pains to resettle these uprooted families. Many of them took jobs on the site.

The Clinton Engineer Works is bounded on the East, South and West by the tortuously-winding Clinch River for a total distance of 36 miles. Within the reservation, there are five main ridges, running east and west. The northernmost is Black Oak Ridge. Next in order come East Fork Ridge, Pine Ridge, Chestnut Ridge and Haw Ridge, which are wooded with oak and several species of pine trees. The variety of vegetation in this vicinity is said to be wider than anywhere in the United States, the region constituting a meeting ground between northern and southern varieties of flora.

Being near Knoxville, the site is not far from the Great Smoky Mountain area which lies east and southeast of Knoxville. To the west are the Cumberland Mountains. Largest towns beside Knoxville near the area are Clinton, from which the Works derives its name; Harriman and Lenoir City. The project covers part of two counties, Anderson and Roane, with the greater part being in Anderson. It is the heart of the TVA country and is situated about 20 miles from Norris Dam.

The town of Oak Ridge is in the northeastern part of the area about 8 miles from Clinton. One production plant is situated between Pine and Chestnut Ridges. Another area is at the extreme western part of the reservation and is 15 miles from Oak Ridge proper. An experimental plant, the pilot plant for the process at the Hanford Engineer Works, near Pasco, Washington is at the southwestern part of the reservation between Chestnut and Haw ridges. Another process plant is in the area of a huge steam plant.

The total amount of lumber used by the Clinton Engineer Works from the latter part of 1942 to May 1, 1945, was in excess of 200,000,000 board feet, almost the output of the State of Minnesota for an entire year. Around 400,000 cubic yards of concrete were used for foundations and some of the structural frames in the plant areas, or one-eight the amount of concrete used in Boulder Dam. Around 55,000 cars of material and equipment were shipped to the Clinton Engineer Works from November, 1942 through June, 1945.

During the peak construction period in July and August, 1944, Clinton Engineer Works used 800 pieces of heavy construction equipment, 5,600 of light construction equipment, 2,000 air driver tools, and nearly 6,000 items of automotive equipment, including 1,000 passenger cars, 400 station wagons, 1,300 pick-up trucks, 750 buses and 2,500 construction-type trucks. The total number

of pieces of equipment used in that period exceeded 14,000 valued at approximately $20,000,000.

Most of the automotive and construction equipment (light and heavy) was obtained from previously-completed war construction jobs by Government transfer, with practically all the major construction pieces obtained from other Corps of Engineer construction jobs.

In July 1945 about 50 per cent of Oak Ridge's population lived in houses and apartments, about 21 per cent in dormitories, another 21 per cent in trailers and about 8 percent in hutments. The houses vary in size but are comfortable, roomy and homey. The Guest House, the town's pleasant two-story Inn, frequently houses many of the world's most distinguished scientists and other persons of note, including Secretary of War Henry L. Stimson during an inspection visit last Spring.

Cultural activities at the project began practically when the first residents moved into their new homes, on which rentals per month range from $22 to $73 for family houses, $10 to $15 monthly per person in dormitories, and $30 to $50 monthly on apartments. The cultural activity includes the Singing Society, the Oak Ridge Community Chorus, the Oak Ridge Community Band and String Orchestra, the Oak Ridge Symphony and the Music Society, which are sponsored by the Oak Ridge Recreation and Welfare Association. There is also the Oak Ridge Artists' Society and a Little Theatre.

Those athletically inclined formed an Independent Baseball League, Horseshoe Pitching League, Women's Softball League and badminton, tennis, handball, archery and gym groups. Clubs included College Women's, Artist, Chess, Stamp, Duplicate Bridge, Saddle, Model Airplane and state clubs formed by residents from widely scattered parts of the country.

Oak Ridge also has its own weekly newspaper, the Oak Ridge Journal. Like all other cultural and recreational activities at the project, it is backed by the Oak Ridge Recreation and Welfare Association, a non-profit citizens' organization which derives its revenue from self-liquidating recreational enterprises.